

AMENDMENTS TO THE CLAIMS

- 11/17/03
LP
1. (currently amended) A multibank DRAM macro allowing concurrent operations to independent banks, said macro comprising:
- (a) a plurality of DRAM memory banks, each bank respectively comprising:
 - (i) an array of DRAM memory cells,
 - (ii) bitlines and wordlines, respectively defining columns and rows of the array,
 - (iii) a dedicated row address decoder circuit,
 - ~~(iv) a column address decoder circuit,~~
 - ~~(iv)~~ dedicated spare rows and columns for redundancy,
 - ~~(b) at least one column address decoder circuit shared by at least two of said banks,~~
 - ~~(cb)~~ a dedicated bank select input pin for each respective bank, each bank select input pin being brought out as a control pin at an interface to said macro, each bank select input pin controlling operation of its respective bank and allowing concurrent operations to independent banks, and
 - ~~(de)~~ a data path receiver / driver shared by at least two banks.
2. (original) The DRAM macro of claim 1 further comprising (d) a master select input.
3. (currently amended) The DRAM macro of claim 2 wherein said bank select inputs pins are latched to a falling edge of a signal from said master select input.
4. (original) The DRAM macro of claim 1 wherein said macro further comprises a write enable input.

5. (original) The DRAM macro of claim 1 wherein said macro further comprises a page mode select input.
6. (currently amended) The DRAM macro of claim 1 wherein each bank further comprises (vi) at least one sense amplifier.
7. (original) The DRAM macro of claim 1 wherein each bank has capacity for about 1 Mb of data.
8. (original) The DRAM macro of claim 7 wherein said macro comprises at least 4 of said banks.
9. (currently amended) An integrated circuit device comprising a logic core and a DRAM macro wherein said DRAM macro is a multibank DRAM macro allowing concurrent operations to independent banks, said DRAM macro comprising:
- (a) a plurality of DRAM memory banks, each bank respectively comprising:
 - (i) an array of DRAM memory cells,
 - (ii) bitlines and wordlines, respectively defining columns and rows of the array,
 - (iii) a dedicated row address decoder circuit,
 - ~~(iv) a column address decoder circuit;~~
 - (iv) dedicated spare rows and columns for redundancy,
 - ~~(b) at least one column address decoder circuit shared by at least two of said banks,~~
 - (cb) a dedicated bank select input pin for each respective bank, each

bank select input pin being brought out as a control pin at an interface to said macro, each bank select input pin controlling operation of its respective bank and allowing concurrent operations to independent banks, and

(de) a data path receiver / driver shared by at least two banks.

10. (currently amended) The integrated circuit device of claim 9 wherein said DRAM macro further comprises (ed) a master select input.
11. (currently amended) The integrated circuit device of claim 10 wherein said bank select inputs pins are latched to a falling edge of a signal from said master select input.
12. (original) The integrated circuit device of claim 9 wherein said DRAM macro further comprises a write enable input.
13. (original) The integrated circuit device of claim 9 wherein said DRAM macro further comprises a page mode select input.
14. (currently amended) The integrated circuit device of claim 9 wherein each bank of said DRAM macro further comprises (vi) at least one sense amplifier.
15. (original) The integrated circuit device of claim 9 wherein each bank of said DRAM macro has capacity for about 1 Mb of data.
16. (original) The integrated circuit device of claim 15 wherein said DRAM macro comprises at least 4 of said banks.
